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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/421,434	10/19/1999	TAKAAKI ASADA	36856.00226	4142

7590 09/10/2002

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EXAMINER

TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 09/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/421,434

Applicant(s)

ASADA, TAKAAKI

Examiner

Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/23/02 (Paper No. 9) has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1, 3 and 10-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Saitoh et al 5,295,487.

Saitoh discloses the claimed manufacturing and screening method of a piezoelectric transformer apparatus comprising: beginning manufacturing of the transformer apparatus by dicing or bonding (see Example 1); connecting a load impedance (circuit 24) to a generator (pulser 22 shown in Fig. 3); identifying whether the transformer apparatus has a mechanical defect by testing or measuring each transformer apparatus for *pulse echoes of frequencies, duty ratios, and pulse widths*, to specifically determine defective transformer apparatuses (see col. 20, line 39-56); and completing manufacturing of the transformer apparatus by assembling each of the transformer apparatuses in a medical diagnosing apparatus (see col. 21, lines 35-38 and col.

1, lines 15+), which meets all of the limitations of the claimed method. The claimed “transformer apparatus” is read as the medical diagnosing apparatus (see col. 21, lines 35-39).

Claim Rejections - 35 USC § 103

4. Claims 1 and 3-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the IEEE Publication to Kawamura et al, referred to hereinafter as Kawamura, in view of Allen et al 5,701,645.

Kawamura discloses a method of screening a piezoelectric transformer apparatus comprising: testing the transformer apparatus by connecting a load impedance to the generator (see Figs. 3 and 5); applying a stress signal to the generator to vibrate the transformer apparatus (shown in Fig. 7); and identifying whether the transformer apparatus has mechanical defects of mechanical strain (see Abstract).

Regarding Claims 3 and 17, the vibration levels shown by Kawamura in Figures 6, 7 and 9 are considered to be within a range of vibration levels, i.e. fatigue limit of strain, during actual use or operation of the transformer apparatus.

Regarding Claims 6 and 20, Kawamura further teaches the transformer apparatus including, or being connected to, a resistance element of an electric-*resistance* strain gage (shown in Fig. 4).

Regarding Claim 10, the transformer apparatus is considered to be inherently cooled since, after screening, the transformer apparatus is placed in normal atmospheric conditions.

Kawamura is silent as to the steps of beginning manufacturing of the transformer apparatus and completing manufacturing of the transformer apparatus.

Allen teaches a piezoelectric transformer manufacturing process in which the process begins with manufacturing multiple transformer apparatuses (shown in Fig. 1) and ends with completing the transformer apparatuses by either packaging each transformer apparatus individually or incorporating each transformer apparatus into other electronic assemblies (see col. 4, lines 33-35). *In between* the steps of beginning and completion of the transformer apparatuses, Allen teaches testing the transformer apparatuses to identify any defective transformer apparatus and cull, or remove, them from the non-defective transformer apparatuses (see col. 4, lines 47-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have improved the screening method of Kawamura by including the piezoelectric transformer manufacturing process of Allen, to positively manufacture multiple piezoelectric transformer apparatuses at one time and identify and remove any defective transformer apparatuses from the manufacturing process. The overall manufacturing process ultimately provides a means to remove all of the defective piezoelectric transformer apparatuses.

With respect to Claims 4, 5, 7, 9, 11, 18 and 19, it would have been an obvious matter of *engineering design choice* to choose any desired relative values of load impedance, type of stress signal, percentage of duty ratio, or type of piezoelectric transformer. Applicant has not disclosed that the load impedance being not less than 10 X the output impedance, sinusoidal continuous wave stress signal, duty ratio of burst wave being not more than 10%, and a Rosen-type piezoelectric transformer, are claimed features which solve any stated problem or are for any particular purpose, and it appears that the invention would perform equally well with the relative

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values of load impedance, stress signal, percentage of duty ratio, and type of piezoelectric transformer taught by either Kawamura et al or Allen et al.

Response to Arguments

5. Applicant's arguments filed 5/23/02 (Paper No. 9) have been fully considered but they are not persuasive.

In regards to the merits of Saitoh, applicant contends that Saitoh does not teach a load impedance circuit and that testing or identifying occurs after manufacturing of the transformer apparatus is completed.

The examiner most respectfully disagrees. The circuit 24 of Saitoh, not only detects impedance, but also through a voltage source carries an electrical load of current. Therefore, the circuit 24 of Saitoh fully satisfies the limitations of a "load impedance".

The examiner's position is that the limitations of "completing the manufacture of the piezoelectric apparatus" is a very broad and relative recitation and that the piezoelectric apparatus of Saitoh is not completed until the apparatus is finally assembled into a medical diagnosing apparatus (at col. 21, lines 35-38). The testing or identification of the mechanical latent defect relied upon in Saitoh (at col. 20, lines 39-59) is performed prior to this completion or assembling of the piezoelectric element into the medical diagnosing apparatus. Thus, Saitoh fully satisfies the specific order (last 5 lines of Claim 1) of identifying and completing.

In regards to the merits of Kawamura, applicant contends that Kawamura does not teach connecting a load impedance to the generator. However, in Figure 5, Kawamura shows a generator read as a voltage source (labeled V), which is connected to an AC current source, i.e.

load impedance. Therefore, Kawamura fully satisfies the limitations of “connecting a load impedance to said generator” (line 4 of Claim 1).

In response to applicant's argument that Allen does not teach completing manufacture of the transformer apparatus after the step of identifying or testing, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the step of identifying, i.e. testing, with which the examiner relies upon in Allen, is the determination of the fatal defects prior to packaging (at col. 4, lines 47-50) of the transformer apparatus, not the testing of the already packaged transformer apparatus (at col. 4, lines 28-35) with which the applicant argues. Accordingly, Allen satisfies the order of steps of identifying and completing and is combinable with Kawamura.

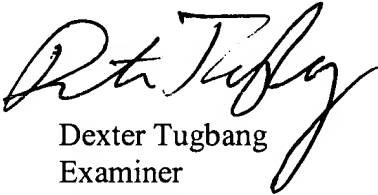
Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3590 for regular communications and 703-305-3588 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.



Dexter Tugbang
Examiner
Art Unit 3729

adt
September 9, 2002